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Series XIII January 1913 Number 1b

BULLETIN

OF

Syracuse University

STATE RANGER SCHOOL

OF THE

New York State College of Forestry

AT

Syracuse University

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FORESTRY DEPARTMENT

CALENDAR

1913.

Feb. 4. Regular Registration 8 a. m.
(Annually on First Tuesday in February.)

Feb. 22. Washington's Birthday.

May 30. Memorial Day.

June 13. Saturday — June vacation begins.

June 29. Monday — June vacation ends.

Nov. 22. Saturday — year ends.

File 2 - #23.

Photo by Hugh P. Baker.

THE FIRST CLASS AT THE STATE RANGER SCHOOL.

The New York State College of Forestry

AT

Syracuse University

BULLETIN OF STATE RANGER SCHOOL

ON

COLLEGE FOREST

AT

WANAKENA, NEW YORK

Syracuse
Published by the New York State College of Forestry
at Syracuse University

1913

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OF THE

NEW YORK STATE COLLEGE OF FORESTRY

AT

SYRACUSE UNIVERSITY.

JAMES ROSCOE DAY, S. T. D., D. C. L., LL.D.,
Chancellor of the University.

HUGH POTTER BAKER, M. F. (Yale 1904); D. Oec. (Munich 1910) DEAN,
Professor of Silviculture.

FRANK F. MOON, B. A. (Amherst College 1901); M. F. (Yale 1909),
Professor of Forest Engineering.

PHILIP TRIPP COOLIDGE, A. B. (Harvard 1905); M. F. (Yale 1907),
Director of Ranger School; Professor of Forestry.

EDWARD F. McCARTHY, B. S. (University of Michigan 1911); M. F. (University of Michigan 1911),
Assistant Professor of Forest Products.

JOHN WALLACE STEPHEN, B. A. (University of Michigan); M. S. (University of Michigan 1907),
Assistant Professor of Silviculture.

NELSON CORTLANDT BROWN, B. A. (Yale 1906); M. F. (Yale 1908),
Assistant Professor of Forest Utilization.

REUBEN PARKER PRICHARD, B. S. (Dartmouth 1907); (Yale 1909),
Instructor in Forestry at Ranger School.

RUSSELL TAYLOR GHEEN, B. S. F. (Penn State 1912),
Student Assistant in Forestry.

EDITH E. HAITH, B. L. E. (Syracuse University 1912),
Librarian.

LILLIAN M. LANG,
Secretary to the Dean.

Members of University Faculty, Outside of College of Forestry, giving Instructions to Students in Forestry.

ERNEST NOBLE PATTEE, M. S. (University of Rochester),
Professor of Chemistry.

JOHN A. R. SCOTT (Baron Posse Normal),
Director University Gymnasium.

THOMAS CRAMER HOPKINS, Ph. D. (University of Chicago),
Professor of Geology.

HENRY MONMOUTH SMITH, Ph. D. (University of Heidelberg),
Professor of Chemistry.

EDSON NEWTON TUCKEY, Ph. D. (Yale University),
Professor of Economics.

WILLIAM MARTIN SMALLWOOD, Ph. D. (Harvard University),
Professor of Zoology.

WILLIAM L. BRAY, Ph. D. (University of Chicago),
Professor of Botany.

J. LASSEN BOYSEN, Ph. D. (University of Würzburg),
Professor of Germanic Philology.

CHARLES HENRY RICHARDSON, Ph. D. (Dartmouth College),
Professor of Mineralogy.

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Professor of Drawing.

MORGAN R. SANFORD, M. S. (Syracuse),
Lecturer on Meteorology and Climatology.

CHARLES JULIUS KULLMER, Ph. D. (University of Tübingen),
Associate Professor of German.

WILLIAM CHARLES LOWE, Ph. M. (Syracuse),
Associate Professor of German.

HERBERT A. CLARK, A. M. (University of Nebraska),
Associate Professor of Physics.

MAULSBY W. BLACKMAN, Ph. D. (Harvard University),
Associate Professor of Zoology.

JULIAN CHASE SMALLWOOD, M. E. (Columbia University),
Associate Professor of Experimental Engineering.

ADOLPH CHARLES BAEBENROTH, A. M. (Harvard University),
Associate Professor of English.

DANIEL PRATT A. M. (Princeton University),
Assistant Professor of Mathematics.

GEORGE F. METZLER, Ph. D. (Johns Hopkins University),
Assistant Professor of Mathematics.

FLOYD FISKE DECKER, Ph. D. (Syracuse),
Assistant Professor of Mathematics.

WILLIAM JOHN GORSE, A. M. (Syracuse),
Assistant Professor of German.

LEIGH H. PENNINGTON, Ph. D. (University of Michigan),
Assistant Professor of Botany.

LEPINE HALL RICE, Ph. B. (Syracuse),
Instructor in Mathematics.

EDWARD MORTIMER AVERY,
Instructor in Practical Mechanics.

LOUIS MITCHELL B. S. in C. E. (Purdue University),
Instructor in Civil Engineering.

SAMUEL D. SARASON, Ph. B. (Yale University),
Instructor in Civil Engineering.

J. HERMAN WHARTON, A. B. (Syracuse),
Instructor in English.

HENRY F. A. MEIER, A. B. (Indiana University),
Instructor in Botany.

ARTHUR E. BRAINERD, B. S. (St. Lawrence University; M. S. (Syracuse),
Instructor in Geology.

HAROLD D. BUELL, B. S. (Colgate),
Instructor in Chemistry.

ORGANIZATION

Gift of the College Forest.

The establishment at Wanakena of the State Ranger School of the New York State College of Forestry was made possible by the gift of 1800 acres of forest land by the Rich Lumber Company. The generosity of the Rich Lumber Company is notably significant of the fact that many lumbermen are backing vigorously the movement for more scientific management of forest lands. This gift of 1800 acres of timberland for purpose of educating men for the right kind of practical work in Forestry, places the School under certain obligations to assist lumbermen and timber owners generally by training a class of men who are greatly needed to fill the gap which now exists between the average woodsman and the professional trained forester.

Purposes of the Ranger School.

There is a very prevalent feeling among both timber owners and foresters that this first Ranger School to be organized in the East has an important part to play in the development of Forestry in this country. The School gives an unusually thorough and practical training of one and two years, fitting men for such positions as rangers, guards, tree planting experts, nursery foremen and managers of forest estates. Young men who have already had some experience in lumbering operations or who are well trained in woodcraft will find this course a material help to them in preparation for the more expert quality of service which is demanded by modern methods of handling timber holdings. Neither the one nor the two-year course is offered as an education in Forestry. The man who completes the course satisfactorily will be a trained ranger, guard or an expert in tree planting and forest nursery practice but not a professional forester. These courses are not recommended for persons in poor health or for those who have little inclination for the rough life of the woods. There will be no opportunity to earn money during the School terms. It is felt that students should be able and willing to save sufficient funds to meet their expenses before beginning so short a course.

Practical field work in Silviculture, Forest Surveying, Estimating and Mapping, Forest Protection, Methods of Lumbering, etc., take precedence over classroom work in the courses but theoretical and practical instruction go hand in hand.

Photo by Hugh P. Baker.

ALONG NORTH BOUNDARY OF COLLEGE FOREST AT WANAKENA.
Showing stand of mixed hardwoods and conifers. From left to right: Herbert C. Rich, President, Rich Lumber Company, J. Otto Hamele, R. H. Hanley.

Photo by Hugh P. Baker.

BEAN POND ON COLLEGE FOREST AT WANAKENA.
A small pond of spring water surrounded by Black Spruce and Balsam Fir. Twenty minutes from the Village of Wanakena.

Upon completion of the one or two-year courses, a certificate will be given by the New York State College of Forestry. After two years of satisfactory practice, following completion of either of the courses, an honorary diploma will be granted.

Location and Equipment.

The village of Wanakena is located along the West Inlet Flow of Cranberry Lake and on the Ontario Division of the New York Central Railroad, 140 Miles north of Syracuse. Cranberry Lake is the largest of the many beautiful Adirondack lakes. The College forest covers a belt of rolling country over three miles long, lying about one-half mile north of Wanakena at an average elevation of 1500 feet.

The extensive logging and milling operations of the Emporium Lumber Company on the east side of the lake and the Higbie Lumber Company and the Newton Falls Paper Company a few miles north of Wanakena give unusual opportunity for the study of modern lumbering methods at first hand. The College Forest is bounded on two sides by State land on which there is much virgin forest. The burned over areas in the vicinity, which the State has begun already to reforest offer ample opportunity for observing and studying the work of the State upon its Forest lands.

The College Forest is very typical of cut-over lands in the Adirondack region, though it has rather more green timber than is found usually upon such lands. A small portion has been burned over and there are a variety of conditions offering many interesting problems for the work of the School.

The School has two rough buildings which will accommodate very comfortably from 30 to 40 men. The main building has a large assembly room with fire places on the first floor as well as a laboratory, a library and office. The second floor is a dormitory. The second building contains dining-room, kitchen, storerooms and dormitory. for help. Plans are already under way for further buildings.

There is a very thorough equipment of forest instruments such as transits, compasses, chains and tapes, calipers and other instruments necessary for forest work. A good working library has been established and the School will accumulate a collection of photographs and slides and collections of woods and herbarium specimens.

Admission and Expenses.

The New York State Ranger School is open to men over 19 years of age who present certificates of good character and perfect physical condition. No tuition will be charged but there will be small fees as enumerated below:

Expenses for one Year.

Matriculation fee, payable once only and not returnable.....	$5 00
Incidental fee for use of library, collections, boats, canoes, etc., per semester, $10.....	20 00
Instrument fee, covering use of instruments, laboratory materials, etc., per semester, $5.....	10 00
Room rent including light and heat.....	25 00
Note.— The above fees payable to the school.	
Books required about.....	12 00
Drawing instruments required about.....	4 00
Total	$76 00
Board at cost, probably about $4 per week, about.....	$160 00
Clothing, laundry, fares for trips, etc., to inspect lumbering operations about	50 00
Total	$210 00

Matriculation fee and other fees and room rent must be paid in advance at the beginning of each semester. Board is payable in advance every five weeks.

As the climate of the Adirondacks is cool in summer and cold in winter, students are expected to provide themselves with plenty of warm but rough clothing and blankets. Heavy underclothing, flannel shirts, heavy socks, sweaters, mackinaw clothes, fleece lined mocassins and heavy boots or shoes are suggested. Khaki or corduroy is often very satisfactory for summer use. Knapsacks or pack baskets and snow shoes are required. Each room in the dormitory will be furnished with iron cot and mattress, chiffonier, washstand and chairs. Soap, towels and other personal necessities, as well as bedding to be furnished by the students. All necessary clothing, etc., can be purchased at stores in Wanakena.

At all times the men will be surrounded by the best moral influences and the people of the town are ready to co-operate in every way towards the success of the school and the welfare of the men. There will be opportunity for attendance upon church services in the village.

Instruction.

The Ranger School is an integral part of the New York State College of Forestry and the entire Faculty of the College will assist from time to time in instructional work. Professor Philip T. Coolidge of the College of Forestry is in charge and is assisted by Mr. Reuben P. Prichard until recently in the United States Forest Service. The Forestry Division of the Conservation Commission has assured the School of its interest and support and members of that Division will be brought in from time to time to give special lines of work for Ranger Students. Public lectures are given during the year by well known people. Excursions are made by the students for the inspection of surrounding lumbering operations and wood-working industries.

Courses begin regularly on the first Tuesday in February. This will be on February 5, 1913. As indicated by the school calendar, no students will be accepted after the third Tuesday in February as promptness in registration is essential to successful work in the school.

Books and Drawing Materials Required.

The following books must be purchased by each student. These may be ordered through a book store or through the Director of the School.

Forest Mensuration, Graves; Wiley & Sons	$3 20
Forestry in New England, Hawley & Hawes; Wiley & Sons	3 50
School and Field Botany, Gray; Amer. Book Co.	1 50
Surveying Manual, Pence & Ketchum; Eng. News Co.	1 70
Manual for Northern Woodsmen, Cary; Harvard Univ. Press	2 00

Other books recommended are:

Practical Botany, Bergen & Caldwell	1 25
Principles of Handling Woodlands, Graves; Wiley & Sons	1 50
Economics of Forestry, Fernow; Crowell & Co.	1 50
History of Forestry, Fernow	2 00
Manual of Trees of North America, Sargent; Houghton Mifflin	5 00
Our Northern Shrubs, Keeler; Scribners	2 00

Important Timber Trees of the United States; Elliott; Houghton Mifflin	$2 50
Book of Camping and Woodcraft, Kephart; Outing Co.	1 50
Handbook of Birds of Eastern North America, Chapman; Appletons	3 00
Conservation of Natural Resources in the United States, Van Hise; Macmillan	2 00
Economic Woods of the United States, Record; Wiley & Sons	1 25

Drawing materials required:

Drawing board	$0 50
T square	35
Drawing set and protractor	1 00
Triangles, celluloid	1 10
Ruler	50
Ink	25
Erasers	10
Total, approvimately	$3 80

Program of Studies.

One Year Course.

Surveying.
Mensuration.
Forest Botany.
Dendrology.
Geology, Physiography.
Mechanical Drawing.
Nursery Practice.
Planting.
Estimating and Mapping.
Forest Engineering.
Lumbering.
Seed Collection and Storage.
Identification of Common Woods.
Game Protection, Fish Culture.
Insects and Diseases injuring Forest Trees.
Silviculture.
Topographical and Forest Surveying.
Fire protection, including construction of roads, trails, telephone lines and observation stations.

Two Year Course.

First Year the same as the One Year Course.

Photo by Hugh P. Baker.

IN THE TIMBER ON THE COLLEGE FOREST AT WANAKENA.

Along the Inlet Flow there is considerable green timber. Herbert C. Rich, President of Rich Lumber Company on left. Otto J. Hamele in center and R. H. Hanley with the Rich Lumber Company.

Photo by Hugh P. Baker

IN "THE BURN" ON THE COLLEGE FOREST AT WANAKENA.

In 1908 a small portion of the forest was burned over. This section is typical of Adirondack burns and will offer interesting problems for Ranger students in utilization of burned

Second Year.

Advanced instruction in:
- Insects and Diseases in the Forest.
- Topographic Surveying.
- Estimating and Mapping.
- Identification of Woods.
- Lumbering.
- Mensuration.

Silviculture.
Forest Engineering.
Forest History and Administration.
First Aid to Injured.
Elementary Business and Property Law.

Description of Courses.

SURVEYING. Use of compass, chain and other instruments. Methods of note-keeping. Map making. Men are drilled thoroughly in all kinds of woods surveying and mapping. Field practice.

TOPOGRAPHIC SURVEYING. Use of the field traverse table and other instruments required for forest maps. Students prepare a complete topographic map showing valleys, streams, slopes and other natural conditions and their relation to the lumbering and management of a forest tract. Field practice and map.

MECHANICAL DRAWING. Such instruction in Mechanical Drawing will be given as to enable the student to prepare forest maps or plans with neatness and accuracy. The use of the drawing pen and other instruments. Lettering. Laboratory practice.

MENSURATION. Scaling and use of log rules. Cordwood measure. Method of estimating. Volume, height, growth and yield tables. Field practice. Text book. Graves' Forest Mensuration.

FOREST ESTIMATING AND MAPPING. Methods of estimating the quantity and value of cordwood, pulpwood, ties and saw timber on forest tracts. Especial attention is paid to the carrying out of field work in a practical way. Thoroughness and accuracy in estimates and maps will be emphasized throughout the course. During field seasons there will be almost constant training in estimating, mapping and the preparation of reports.

FOREST ENGINEERING. The construction of roads, trails, cabins, telephone lines, observation towers and logging railroads, and use of simple engines, steam skidders and other machinery of construction which may be used in the exploitation or protection of a forest tract.

LUMBERING. The course in lumbering consists in part of a thorough study and reports upon some large logging and milling operation. Methods and costs of logging and milling, Cost keeping. Determina-

tion of stumpage values. Students will be required to take part for a short period in the work of a logging and milling operation. In addition to the field work, a thorough discussion of the practical phases of the lumber industry will be conducted in the classroom, including its general history and present extent and character. The Minor forest industries such as production of wood pulp, tan bark, maple sugar, inspection of a pulp and paper mill.

FOREST BOTANY. Parts of plants and their functions. Classification and identification of important woody plants. The structure and properties of wood. Lectures, laboratory practice, field study and collection of specimens.

DENDROLOGY. A thorough study of the important characteristics of the trees and shrubs of the Northeastern States. Besides a careful field study of the northern species, students have opportunity to become acquainted through the School Collection with the important trees of other forest regions. Field practice and laboratory instruction.

SILVICULTURE. The requirements and development of trees in the forest. The relations of forests to climate and stream flow. Studies of the development of individual trees and trees in groups. Forest types. The regeneration and improvement of stands. Methods of thinning. The marking of stands for cuttings. Methods of handling northern forests. Reading, recitations, lectures and field practice.

Textbooks. Graves, Principles of Handling Woodlands. Hawley & Hawes, Forestry in New England.

FOREST SEEDING AND PLANTING. A seed bed and transplant nursery will be conducted by the students at Wanakena. A complete planting operation will be carried through beginning with the collection of seed and ending with the planting of trees on the land on which they are to grow permanently. Study of the development of seedlings of various species is made in the School laboratories. The field practice is supplemented by classroom discussion of various methods of artificial reproduction of the forest.

SEED GATHERING AND WINTER STORAGE. Collection of cones and extraction of seed. Seed storage. Seed gathered is used in the Ranger School nursery the spring following.

FIRE PROTECTION. Effective methods of preventing and fighting fire, with lookout stations, telephones, patrols, fire lines, etc. Fire tools and their use. Plans for the protection of forest tracts. Ways of estimating and determining damage by fire to merchantable timber and young growth. Lectures and field practice.

FOREST ADMINISTRATION. Discussion of the principles of practical administration of a forest tract. Division of a tract into logging compartments and plans for the administration and exploitation of a tract. During their stay at Wanakena students take part in all phases of the administration of the College tract. Short series of lectures dealing with the present policy of forest administration with reference to exploitation and future protection and yield.

HISTORY OF FORESTRY. Lectures on the development of American Forestry and the present National Forestry policy. Lessons from Forestry abroad. The meaning of the Conservation movement.

NEW YORK FOREST LAW AND PROPERTY LAW. A discussion of the laws of the State relating to forestry, fish, game and forest fires. Contracts, property law, and other business law of importance in the lumber industry.

IDENTIFICATION OF COMMON WOODS. By the use of the School collection of the important commercial woods, students are taught simple methods of identification.

DISEASES OF TREES. The nature of fungi and the work of some of the common forms in wood and in living trees. Practical preventative measures. Preservation of timber to prevent decay. Lectures and laboratory practice.

FOREST INSECTS. The place of insects in the life of the forest. Some of the common forms which are injurious to trees and timber. Methods which may be used in the forest to destroy or prevent spread of insects. Lectures and laboratory practice.

FOREST ZOOLOGY. The propagation and protection of fish and game. Fish and game legislation. Field studies of birds and other wild animals.

GEOLOGY, PHYSIOGRAPHY AND SOILS. The simpler characteristics of important rocks and minerals. Lectures on important geologic and physiographic processes. Study and classification of soils. Relation of forest growth to soils. How soils may be improved. Lectures, laboratory and field practice.

METEOROLOGY. A few lectures on climatic phenomena. Students will assist in the taking of daily weather observations at the School.

ENGLISH. No attempt will be made to give thorough instruction in English. The taking of notes and the writing of abstracts and reports will be discussed fully. Such assistance will be given each student as he may need to develop an accurate, concise style for business correspondence. The examination papers and reports and abstracts of individual students will be corrected carefully as to the use of English.

CAMPING AND PACKING. Camp cooking, canoecraft, hygiene, packing, shooting, etc. Outfitting for woods work.

FIRST AID. Lectures and demonstrations by a physician.

CARE OF HORSES. Lectures and demonstration by a veterinary surgeon. Defects and ailments of horses. Feeding and care of work horses. Horse-shoeing.

List of students enrolled 1912.

Aney, John Lorne	Cazenovia, N. Y.
Bacon, Charles Franklin	Antwerp, N. Y.
Colburn, Harold Earl	Addison, N. Y.
Colburn, Willis Clare	Addison, N. Y.
Hayward, Clarence Russell	New York City.
Morrison, Harold Maynard	Braintree, Mass.
Peacock, Roy Bannister	Antwerp, N. Y.
Phillips, Lewis Lynn	Watertown, N. Y.
Smith, Carl Eugene	Marcellus, N. Y.
Sullivan, James	Mendham, N. J.
Hallowell, Walter Michael	Vineland, N. J.
Whitmore, Eugene Stanley	Antwerp, N. Y.
Van Campen, Alden John	Olean, N. Y.
Russ, John Wesley	Addison, N. Y.